

IN THE CLAIMS

1. (Withdrawn) A print head comprising:

a cavitation layer formed by an atomic layer deposition process.
2. (Withdrawn) The print head of claim 1, wherein the cavitation layer is tantalum, titanium, molybdenum, or niobium.
3. (Withdrawn) A fluid-ejection device comprising:

a die having a plurality of layers formed thereover;

a firing chamber formed from the plurality of layers, from which heated fluid is ejected, wherein a first layer of the plurality of layers is a cavitation layer of the firing chamber that is formed by atomic layer deposition.
4. (Withdrawn) The fluid-ejection device of claim 3, wherein a second layer of the plurality of layers is a passivation layer that is formed by atomic layer deposition.
5. (Withdrawn) The fluid-ejection device of claim 4, wherein the passivation layer contains at least one of refractory metals, transitional metals, insulators, metal oxides, nitrides, borides, and carbides.
6. (Withdrawn) The fluid-ejection device of claim 4, wherein the passivation layer is silicon carbide or diamond-like-carbon.
7. (Withdrawn) The fluid-ejection device of claim 4, wherein the passivation layer comprises plurality of passivation layers.
8. (Withdrawn) The fluid-ejection device of claim 4, wherein the passivation layer has a thickness of between about 250 angstroms and about 500 angstroms.

9. (Withdrawn) The fluid-ejection device of claim 4, wherein the cavitation layer has a thickness of about 500 angstroms.
10. (Withdrawn) A print head comprising:
 - a die;
 - a firing chamber disposed upon the die, the firing chamber comprising an ALD cavitation layer;
 - a heating element interposed between the die and the firing chamber; and
 - an ALD passivation layer interposed between the heating element and the firing chamber.
11. (Withdrawn) The fluid-ejection device of claim 10, wherein the ALD passivation layer comprises a silicon nitride layer and a silicon carbide layer.
12. (Withdrawn) A fluid-ejection device comprising:
 - a die;
 - a firing chamber disposed upon the die, the firing chamber comprising a cavitation layer formed by atomic layer deposition;
 - a heating element interposed between the die and the firing chamber; and
 - a dielectric film, interposed between the heating element and the cavitation layer, wherein the dielectric film is formed by atomic layer deposition.
13. (Withdrawn) The fluid-ejection device of claim 12, wherein the dielectric film comprises a plurality of dielectric layers.

14. (Withdrawn) The fluid-ejection device of claim 13, wherein at least one of the plurality of dielectric layers is of silicon carbide and at least another of the plurality of dielectric layers is of silicon nitride.
15. (Withdrawn) The fluid-ejection device of claim 12, wherein the dielectric film is diamond-like carbon or silicon carbide.
16. (Withdrawn) The fluid-ejection device of claim 12, wherein the dielectric film has a thickness of between about 250 angstroms and about 500 angstroms.
17. (Withdrawn) The fluid-ejection device of claim 12, wherein the cavitation layer has a thickness of about 500 angstroms.
18. (Withdrawn) The fluid-ejection device of claim 12, wherein at least one of the cavitation layer and the dielectric film comprises a dopant.
- 19-34 (Canceled)
35. (New) A method of fabricating a fluid-ejection device comprising:
forming a cavitation layer overlying a substrate in lateral contact with a first portion of dielectric layer using atomic layer deposition; and
forming a passivation layer on a second portion of the dielectric layer using atomic layer deposition, and not on the cavitation layer.
36. (New) The method of claim 35, wherein forming the passivation layer on the second portion of the dielectric layer comprises forming a carbide layer on the second portion of the dielectric layer.

37. (New) The method of claim 35, wherein forming a cavitation layer comprises adding a dopant to the cavitation layer using atomic layer deposition.
38. (New) The method of claim 35, wherein the cavitation layer is tantalum, titanium, molybdenum, or niobium.
39. (New) A method of manufacturing a print head comprising:
forming a first dielectric layer overlying at least a first portion of a substrate using atomic layer deposition;
forming a second dielectric layer having a first portion overlying at least a second portion of the substrate and a second portion overlying at least a portion of the first dielectric layer;
forming a cavitation layer overlying the first dielectric layer and in lateral contact with the first portion of the second dielectric layer using atomic layer deposition; and
forming a third dielectric layer on the second portion of the second dielectric layer using atomic layer deposition, and not on the cavitation layer.
40. (New) The method of claim 39, wherein at least one of the first and second dielectric layers is a carbide layer.
41. (New) The method of claim 39, wherein the first dielectric layer comprises a plurality of first dielectric layers, wherein at least one of the plurality of first dielectric layers is a silicon carbide layer and at least another of the plurality of first dielectric layers is a silicon nitride layer.
42. (New) The method of claim 39 further comprises:
before forming the second dielectric layer, forming a seed layer overlying the second portion of the substrate using atomic layer deposition; and

before forming the second dielectric layer, forming a conductive metal layer on the seed layer.

43. (New) The method of claim 43, wherein the conductive metal layer is aluminum or tungsten.
44. (New) The method of claim 43, wherein the conductive metal layer forms one or more contacts.
45. (New) The method of claim 39 further comprising forming a resistive layer before forming the first dielectric layer, wherein forming the first dielectric layer comprises forming the first dielectric layer on the resistive layer.

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Title: FLUID-EJECTION DEVICES AND A DEPOSITION METHOD FOR LAYERS THEREOF

CONCLUSION

Applicant has included the text of the withdrawn claims in accordance with 37 CFR § 1.121. Applicant respectfully submits that the remarks filed on June 23, 2005 in response to the Office Action mailed on March 30, 2005 are in condition for consideration. Applicant further submits that in view of the amendments and those remarks, the claims are in condition for allowance and notification to that effect is earnestly requested. If the Examiner has any questions regarding this application, please contact the undersigned at (612) 312-2208.

Respectfully submitted,

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